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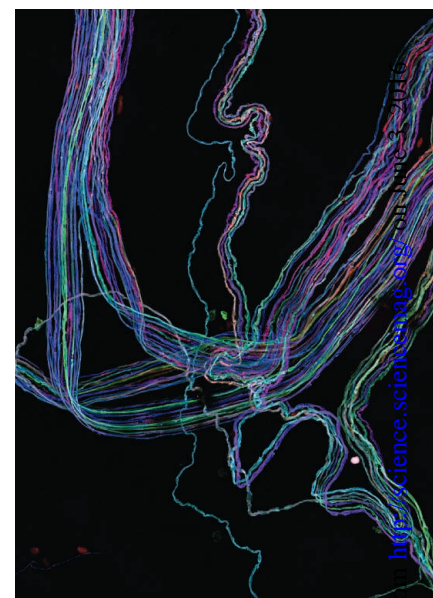
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False-colored scanning electron micrograph showing the proximal colon of germ-free mice colonized with bacteria of the genus *Clostridium* (average length ~3.5 micrometers). *Clostridium* species indigenous to the mouse colon stimulate intestinal epithelial cells to induce regulatory T cells, which contribute to the suppression of unfavorable inflammation and allergic responses. See page 337.

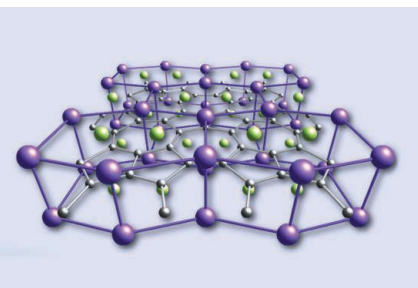
*Image: Kenya Honda, Department of Immunology, University of Tokyo*

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## BREVIEW

- 303** Mitochondrial Capture by a Transmissible Cancer  
*C. A. Rebbeck et al.*  
A clonal cancer in feral dogs has likely acquired mitochondria from its host by horizontal transfer.  
>> *Science Podcast*

## RESEARCH ARTICLE

- 304** Direct Conversion of *C. elegans* Germ Cells into Specific Neuron Types  
*B. Tursun et al.*  
Removal of a chromatin factor allows transcription factors to reprogram germ cells into neurons.  
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## REPORTS

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*R. C. Weber et al.*  
Reinterpreted Apollo-era seismic data from the Moon reveal a solid inner core and a fluid outer core.
- 312** A Persistent Oxygen Anomaly Reveals the Fate of Spilled Methane in the Deep Gulf of Mexico  
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Methane released during the Deepwater Horizon blowout was degraded by methanotrophic bacteria.
- 316** Quantum Criticality Without Tuning in the Mixed Valence Compound  $\beta$ -YbAlB<sub>4</sub>  
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- 319** A Magnetically Focused Molecular Beam of Ortho-Water  
*T. Kravchuk et al.*  
Magnetic fields can separate two isomers of water that differ in the relative spin states of their two hydrogen atoms.

- 321** An Egg-Adult Association, Gender, and Reproduction in Pterosaurs  
*J. Lü et al.*  
A pterosaur fossil that includes a small, soft-shelled egg indicates a reproductive strategy like that of crocodilians.
- 324** Changes in Climatic Water Balance Drive Downhill Shifts in Plant Species' Optimum Elevations  
*S. M. Crimmins et al.*  
Many mountain plant species in California shifted downhill, tracking regional changes in water balance.
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Black kite nest decorations are honest signals of individual and territory quality.
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*S. M. Gregory et al.*  
A viral homolog of a host microbial sensor inhibits viral detection by the host and subsequent antiviral immunity.
- 334** A Methylaspartate Cycle in Haloarchaea  
*M. Khomyakova et al.*  
Salt-loving microbes have patched together an alternative carbon assimilation cycle.  
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- 337** Induction of Colonic Regulatory T Cells by Indigenous *Clostridium* Species  
*K. Atarashi et al.*  
Bacteria of the genus *Clostridium* promote the induction of suppressor T cells in the colons of mice.  
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- 341** The Neural Basis of Intuitive Best Next-Move Generation in Board Game Experts  
*X. Wan et al.*  
Compared with amateurs, expert shogi players show specific brain activation patterns.  
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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.sciencexpres.org](http://www.sciencexpres.org)

### Retrieval Practice Produces More Learning than Elaborative Studying with Concept Mapping

J. D. Karpicke and J. R. Blunt

Two different ways of thinking through texts are compared for learning value.

10.1126/science.1199327

### DAXX/ATR, MEN1, and mTOR Pathway Genes Are Frequently Altered in Pancreatic Neuroendocrine Tumors

Y. Jiao et al.

A rare but deadly form of human pancreatic cancer harbors mutations in chromatin remodeling genes.

10.1126/science.1200609

### A Bacterial Protein Targets the BAHD1 Chromatin Complex to Stimulate Type III Interferon Response

A. Lebreton et al.

A virulence factor secreted by *Listeria monocytogenes* induces expression of interferon-stimulated genes.

10.1126/science.1200120

### Increasing Solar Absorption for Photocatalysis with Black Hydrogenated Titanium Dioxide Nanocrystals

X. Chen et al.

An amorphous surface layer on titanium dioxide nanoparticles creates electronic states that allow longer-wavelength photoexcitation.

10.1126/science.1200448

### Synthesis and Measurement of Ultrafast Waveforms from Five Discrete Optical Harmonics

H.-S. Chan et al.

Optical fields have been manipulated like radio frequencies into sawtooth and square-wave patterns.

10.1126/science.1198397

## SCIENCENOW

[www.sciencenow.org](http://www.sciencenow.org)

Highlights From Our Daily News Coverage

### The Solar System Swallower

Astronomers find biggest black hole to date.

<http://scim.ag/big-black-hole>

### Pandas Prefer Old Forests

Finding may aid conservation policies.

<http://scim.ag/panda-forest>

### Objects in the Telescope May Be Closer Than They Appear

Astronomers rethink some of their "standard candles."

<http://scim.ag/standard-candles>

## SCIENCE SIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

18 January issue: <http://scim.ag/ss011811>

### RESEARCH ARTICLE: The Kinase SGK1 in the Endoderm and Mesoderm Promotes Ectodermal Survival by Down-Regulating Components of the Death-Inducing Signaling Complex

T. Endo et al.

The kinase SGK1 participates in an intertissue survival pathway during the early stages of development.

### PERSPECTIVE: Signals from the Nucleus—Activation of NF- $\kappa$ B by Cytosolic ATM in the DNA Damage Response

K. Hadian and D. Krappmann

The kinase ATM has a cytosolic scaffolding function in the activation of NF- $\kappa$ B in response to DNA damage.

## GLOSSARY

Find out what c-IAP1, MCC, and LKB1 mean in the world of cell signaling.

## SCIENCE CAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)

Free Career Resources for Scientists

### The Why's and What For's of Employment References

D. Jensen

In industry these days, verbal recommendations mean a lot more than those written on paper.

<http://scim.ag/hjWro3>

### Balancing Professional Aspirations With Family

E. Pain

Neuroscientist John Abergis-Schoute revised his professional aspirations once he started a family.

<http://scim.ag/ial8o8>

## SCIENCE TRANSLATIONAL MEDICINE

[www.sciencetranslationalmedicine.org](http://www.sciencetranslationalmedicine.org)

Integrating Medicine and Science

19 January issue: <http://scim.ag/stm011911>

### COMMENTARY: "Creating Hope" and Other Incentives for Drug Development for Children

E. Connor and P. Cure

Proposed legislation would provide financial benefits for companies that develop drugs for treating rare pediatric diseases.

### PERSPECTIVE: Leukotriene Inflammatory Mediators Meet Their Match

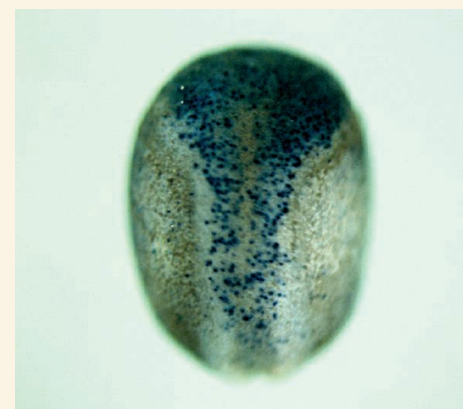
C. D. Funk

The main enzyme in the leukotriene biosynthesis pathway finally yields to crystallization, paving the way for new leukotriene-modifier drugs.

### RESEARCH ARTICLE: Stromal Endothelial Cells Directly Influence Cancer Progression

J. W. Frances et al.

Endothelial cells can serve as plastic paracrine regulators of cancer biology, modulating tumor growth and metastasis.



## SCIENCE SIGNALING

Embryonic cell death in the absence of SGK1.

### RESEARCH ARTICLE: An Aptamer-siRNA Chimera Suppresses HIV-1 Viral Loads and Protects from Helper CD4<sup>+</sup> T Cell Decline in Humanized Mice

C. P. Neff et al.

A dual-function aptamer that targets both a HIV-1 surface protein and a critical messenger RNA can inhibit HIV infection in humanized mice.

## SCIENCE PODCAST

[www.sciencemag.org/multimedia/podcast](http://www.sciencemag.org/multimedia/podcast)

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Science Policy News and Analysis

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Editor's Summary

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